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CLAIMS:

1. A visual display screen arrangement for displaying an image, comprising:
- 5 image display means having a display area; and
a translucent cover member arranged to cover the display area and having a first cover member edge, the display area having an edge extending towards but not as far as the said first cover member edge, the cover member
- 10 providing a local magnification defined as the ratio of the apparent magnitude of an area A of the display area, as viewed through the cover member at a particular angle of incidence, to the actual magnitude of that area A within the display area;
- 15 the cover member having:
- (a) a generally planar portion covering at least a part of the display area and being arranged to transmit parallel rays of light emanating from different locations across the display area such that they are bent by substantially the
- 20 same angle when viewed externally of the arrangement and wherein the local magnification is substantially unity; and
- (b) an edge portion which includes the first cover member edge, the said edge portion having a light bending region arranged to bend rays of light emanating from
- 25 different locations at or adjacent to the edge of the display area such that the said display area, as viewed externally of the arrangement and through the edge portion, appears to extend substantially as far as the edge of the cover member,
- 30 characterised in that the light bending region of the edge portion provides a local magnification which varies with distance from the cover member edge, and wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between

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the generally planar portion of the cover member and the first cover member edge.

2. The arrangement of claim 1, wherein the light bending region includes a graded refractive index and/or a non-constant curvature so as to provide for a graded magnification of an area within the display area.
3. The arrangement of claim 1 or claim 2, wherein the light bending region comprises a curved section, the radius of curvature thereof being non-constant so as to minimize the said rate of change of local magnification.
4. The arrangement of claim 1, claim 2 or claim 3, wherein the light bending region has a graded refractive index so as to minimize the rate of change of local magnification.
5. The arrangement of claim 1, claim 2 or claim 3, wherein the light bending region is a segmented lens having a graded magnification.
6. An arrangement as claimed in any one of the preceding claims, wherein the cover member further includes a second cover member edge which is generally orthogonal to the said first cover member edge, the cover member also having a further edge portion including a second light bending region and the said second cover member edge, wherein the second light bending region of the further edge portion also provides a local magnification which varies with distance from the second cover member edge and wherein the second light bending region also has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the second cover member edge.

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7. The arrangement of claim 6, wherein the translucent cover member has further sides at least one of which has a cover member edge portion containing a further light bending region and a further cover member edge, and wherein each
5 such further side having the further light bending region has a graded magnification so as to minimize the rate of change of local magnification between the planar portion of the cover member and the cover member edge of that side.

10 8. The arrangement of any preceding claim, wherein the image display means is arranged to display an image which is compressed adjacent to or near the display area edge.

9. The arrangement of claim 8, wherein the image display
15 means is arranged to generate a graded compression of the image.

10. The arrangement of claim 9, wherein the graded compression of the image complements the graded
20 magnification provided by the edge portion of the cover member such that an image, as viewed externally of the arrangement, appears substantially undistorted.

11. The arrangement of any of claims 8 to 10, further comprising a processor arranged to process an image to be
25 displayed within the display area so as to provide compression thereof.

12. The arrangement of any of claims 8 to 10, wherein the image display area comprises a plurality of pixels, the area
30 covered by a pixel in a first region adjacent to the said edge of the display area being different to the area covered by a pixel in a second region beneath the generally planar portion of the cover member, and wherein the magnitude of the area of the pixels is graded between the said first and
35 second regions.

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13. The arrangement of any of claims 8 to 11, further comprising an image compression adjuster, operable to alter the compression of an image in the vicinity of the edge of the image display area.

14. The arrangement of claim 13, wherein the image compression adjuster is manually operable.

15. The arrangement of claim 13, wherein the image compression adjuster is operable under software control automatically to adjust the image compression in the vicinity of the edge of the image display area.

16. The arrangement of claim 15, wherein the image compression adjuster is arranged to detect the presence of text in a region adjacent the edge of the image display area, and automatically to adjust the font size and/or shape in that region so as to improve the legibility thereof.

17. The arrangement of any one of the preceding claims, further comprising light coupling means, arranged adjacent the edge of the cover member and adapted to couple light emanating from the image display area through the said edge of the cover member.

18. The arrangement of claim 17, wherein the light coupling means is incorporated into the edge of the cover member and is an optical foil or a half mirror.

19. The arrangement of claim 17, wherein the light coupling means is formed upon the edge of the cover member and is selected from the list comprising a gel such as an index matching gel, silicone rubber and petroleum jelly.

20. The arrangement of any one of the preceding claims, further including brightness detection means arranged to determine the uniformity of brightness of an image within the image display area, and brightness adjustment means to
5 compensate for detected brightness variations within a displayed image.

21. The arrangement of claim 20, wherein the arrangement includes a backlight to illuminate the image display area,
10 the brightness adjustment means includes a controller arranged to adjust the intensity of the backlight in dependence upon the detected brightness variations.

22. The arrangement of any preceding claim, further
15 comprising:

second image display means having a second display area; and

a second translucent cover member arranged to cover the second display area, the second cover member having a first
20 cover member edge locatable in use adjacent the first cover member edge of the first cover member, the second display area having an edge extending towards but not as far as the said first cover member edge of the second cover member, the second cover member providing a local magnification, defined
25 as the ratio of the apparent magnitude of an area A' of the second display area as viewed through the second cover member at a particular angle of incidence, to the actual magnitude of that area A' within the second display area;

the second cover member having:

30 (a) a generally planar portion covering at least a part of the second display area and being arranged to transmit parallel rays of light emanating from different locations across the second display area such that they are bent by substantially the same angle when viewed externally of the
35 arrangement; and

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(b) an edge portion which includes the first cover member edge, the edge portion of the second cover member having a light bending region arranged to bend rays of light emanating from different locations at or adjacent to the edge of the second display area such that the second display area, as viewed externally of the arrangement and through the edge portion of the second cover member, appears to extend substantially as far as the first cover member edge thereof,

10 wherein the light bending region of the edge portion of the second cover member also provides a local magnification which varies with distance from the cover member edge, and wherein the light bending region thereon has a graded magnification adapted to minimize the rate of change of
15 local magnification between the generally planar portion of the second cover member and the first cover member edge thereof.

23. The arrangement of claim 22, further arranged to
20 generate at least a part of an image both within the first display area and adjacent the first cover member edge and also within the second display area, adjacent the first cover member edge of the second cover member.

24. The arrangement of claim 22 or claim 23, wherein the
25 second image display means and the second translucent cover member are moveable relative to the first image display means and the first translucent cover member, between a first, open position wherein the edges of the cover member
30 edge portions of the first and second cover members abut one another, and a second, closed position wherein the said edges of each cover member edge portion do not abut one another.

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25. The arrangement of any of claims 22 to 24, wherein the first and second light bending regions having graded magnifications further comprise respective first and second magnification transition portions located towards the first and second cover member edges respectively, the first and second magnification transition portions both providing a substantially constant and equal local magnification, such that an image displayed by the first and second display means appears substantially undistorted across a junction therebetween as a user moves away from a viewing position generally above the junction to one side.

26. The arrangement of any of claims 22 to 24, wherein the first and second light bending regions having graded magnifications further comprise respective first and second magnification transition portions located towards the first and second cover member edges respectively, the first and second magnification transition portions providing a generally decreasing local magnification towards the respective first and second cover member edges, such that an image displayed by the first and second display means appears substantially undistorted across a junction therebetween as a user moves away from a viewing position generally above the junction to one side.

27. The arrangement of either claim 25 or claim 26, wherein the first and second image display means are arranged to generate a compression of the image which corresponds to the magnification provided by the first and second light bending regions having graded magnification and respective first and second magnification transition portions.

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28. An image display assembly comprising a plurality of visual display screen arrangements as claimed in any one of claims 1 to 21.

5 29. The image display assembly of claim 28, wherein each arrangement abuts another such arrangement so as to provide a tessellated assembly.

30. A mobile telephone; a personal digital computer; a
10 command, control or gaming console; or other fixed or portable, single-screen or multi-screen device, comprising the arrangement of any of claims 1 to 24.

31. A visual display screen arrangement for displaying an
15 image substantially as herein described with reference to Figures 2 to 33.